

RESERPIC ACID, GALLIC ACID, AND FLAVONOIDS FROM
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As part of a phytochemical study of *Rauwolfia* species (Apocynaceae), *Rauwolfia vomitoria* Afzel was examined for its free acidic constituents. In the study, four unreported crystalline compounds were obtained and identified as reserpic acid, gallic acid, kaempferol, and quercetin. Reserpic acid is synthetically obtained by controlled alkaline hydrolysis of the ester alkaloids reserpine and rescinnamine (1,2), and this is the first report of its natural occurrence. The possibility of artifact formation was ruled out by consistent isolation of this compound from different batches of the plant material under extremely mild basic conditions in which reserpine and related alkaloids remain unaffected. Moreover, saponification of these bases also yields trimethoxylated aromatic acids (1,2), which could neither be isolated nor detected by tlc of the total acid fraction against authentic standards.

EXPERIMENTAL

GENERAL EXPERIMENTAL PROCEDURES.—Spectra were recorded with the following instruments: uv, Varian Techtron model 635; ir, Infracord 2221, Perkin-Elmer; ms, Varian MAT 711; pmr, Varian 90 MHz; ¹³C-nmr, HFX 90, Brüker-Physik AG. Adsorbants for tlc and cc were from E. Merck.

PLANT MATERIAL.—The rootstock of *Rauwolfia vomitoria* was collected from the Congo and supplied to us in the form of methanolic extract by Kali Chemie Pharma, Hannover, West Germany. A voucher specimen is on deposit in the herbarium of the Institute.

EXTRACTION AND ISOLATION.—The methanolic extract of the powdered roots of *R. vomitoria* (1.5 kg) was continuously extracted with ethyl acetate (Soxhlet apparatus) for 10 h. The ethyl acetate extract was concentrated to a small volume, and the free acids were successively shaken out with 10% dilute sodium carbonate and 1:1 mixture of methanol and 20% dilute ammonia. The combined basic fractions were acidified, and the liberated acids were extracted with dichloromethane. The residue obtained on removal of solvent from the organic phase was taken up in dilute sodium carbonate (20 ml), adjusted to pH 2 with concentrated hydrochloric acid, and extracted with chloroform. The aqueous fraction left over after chloroform extraction deposited crystalline reserpic acid hydrochloride (185 mg) on cooling in the ice chest. Free reserpic acid was made crystalline by standard procedure, and identified on the basis of mp, elemental analysis, Rf, ir, uv, ms, and nmr.

The compounds obtained from the chloroform fraction were gallic acid (20 mg), kaempferol (60 mg), and quercetin (80 mg). These were isolated through column and preparative chromatography and identified by standard spectral data, as well as by authentic sample comparison and color-reaction procedures (3,4).

Full details of the isolation and identification of the compounds are available on request to the senior author.

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